

## REMARKS

The Examiner is thanked for the careful examination of the application. However, in view of the foregoing amendments and the remarks that follow, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections. In response to the art rejections, claim 3 has been cancelled and the subject matter thereof has been added to claim 1. New claims 25 – 29 are added.

Although the application is under final rejection, the foregoing amendments should be entered because they merely incorporate the substance of a dependent claim into an independent claim.

### Art Rejections:

Claims 1-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,043,014, hereinafter Loechl, in view of U.S. Patent No. 2,770,216, hereinafter Schock. The Examiner alleges that Loechl discloses a conveyor for moving gypsum boards, spray arms, a base frame, a plurality of spray nozzles and a pump system. The Examiner acknowledges that Loechl does not disclose spraying arms with a pivot mounting to pivot from operative positions. However, the Examiner does allege that Loechl discloses a support beam with nozzle clusters at different distances. The Examiner relies upon Schock to disclose pivot arms for spray heads and argues that it would have been obvious to one with ordinary skill in the art to include pivot arms for spray heads on Loechl because Schock teaches uniformity as desirable in the spraying art.

Claim 1, as now amended, includes certain features that are not taught or suggested by the applied prior art. In particular, claim 1 defines a combination that

includes, among other things, a plurality of nozzles that are arranged in clusters and the nozzles in each cluster are staggered so that at least some of the nozzles in each cluster are at different distances from the spray arm with respect to each other.

The Examiner alleges that Loechl discloses a support beam with nozzle clusters at different distances and that "no further definition is recited in the claims as to what is defined as a cluster."

The term "cluster" is well understood by one of ordinary skill in the art as a synonym for "group," which is its most usual meaning. In addition, Figure 4A of the present application clearly shows four clusters, each of which is composed of four nozzles, as described in paragraph 0026 of the present application. Thus, it should be clear even in view of the specification that one of ordinary skill in the art would understand the term "cluster."

The spraying device disclosed in Loechl comprises a spray line 14 which includes several spray heads 13. Loechl does not explicitly state how the spray heads are arranged on the spray line. However, in Figures 1-3 of Loechl, it is clear that all the spray heads are uniformly spaced along the spray line. As a consequence, Loechl does not teach or suggest a support beam with nozzle clusters.

Furthermore, it does not teach or suggest that nozzles in each cluster are at different distances *from the spray arm* with respect to each other. Loechl teaches that the nozzles are all at approximately the same distance from the beam that supports them.

Figure 4A of the present application illustrates the staggering of the nozzles within each cluster as described in the independent claims. For instance, within the

cluster of nozzles 54A, 56A, 58A, and 60A, nozzle 54A is closest to the spray arm 10 and is situated above nozzle 56A, which is situated above nozzle 58A, which is situated above nozzle 60A. In contrast to the present invention, Figures 2 and 3 in Loechl show spray heads that are all at approximately the same distance from the spray line. Furthermore, nothing in the specification of Loechl teaches otherwise. Accordingly, Loechl also does not teach or suggest staggered nozzles which are at different distances from the spray arm with respect to each other.

Schock relates to an apparatus and procedure for spraying a substance on a web material. The apparatus of Schock comprises a single spray head 4. As a result, Schock does not relate to the use of several spray nozzles, let alone the use of nozzles arranged in clusters which are staggered within each cluster.

In view of the above, one skilled in the art would not be motivated to combine Loechl with Schock so as to arrive at the combination set forth in amended claim 1 of the present application. Furthermore, the invention of claim 1 solves the technical problems of obtaining a better control over the spray, as explained in paragraph 0026 of the present application. Nothing in Loechl nor in Schock would have incited one of ordinary skill in the art to solve such a technical problem by implementing such features into a conventional gypsum board manufacturing line. Accordingly, claim 1 is clearly patentable over Loechl in view of Schock. Claims 2 and 4-13 depend from claim 1, and are thus also patentable over the applied prior art.

Claim 14 and claim 21 define a spray arm and a method of spraying a coating, respectively, which recites the new and non-obvious technical features described above with respect to claim 1, namely the clustering of nozzles and the staggering of nozzles within each cluster. Accordingly, the arguments set forth

above with respect to claim 1 also apply to the subject matter of claims 14 and 21.

In addition, claims 15-20 and 22-24 depend from claims 14 and 21, respectively, and are thus also patentable over the applied prior art.

New independent claim 28 defines a manufacturing line for gypsum boards that includes, among other elements, a plurality of spray nozzles arranged on a spray arm for spraying a coating on gypsum boards on a conveyor, wherein the plurality of nozzles are arranged in clusters and the nozzles in each cluster are staggered so that at least some of the nozzles in each cluster are at different distances from the spray arm with respect to each other. Accordingly, new claim 28 is also patentable over the applied prior art at least for the reasons set forth above with respect to claim 1. New claims 25 – 27 and 29 are patentable at least for the reasons set forth above with regard to the independent claims. In addition, each of those claims provides a definition of cluster that is not taught by the applied prior art.

In view of the foregoing amendments and remarks, the Examiner is respectfully requested to reconsider and withdraw the rejections of the present application.

Respectfully submitted,

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